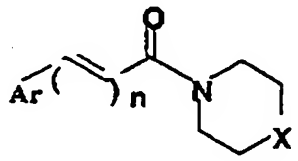
Claims

1. Novel arylalkenoic acid heterocyclic amide of general formula (I) useful as food additives and in pharmaceutical applications,



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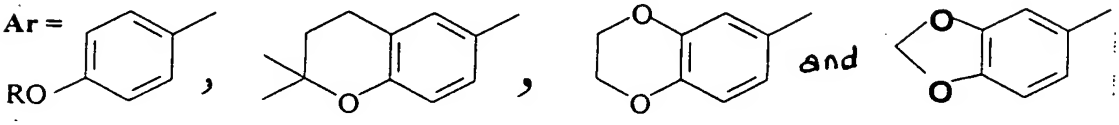
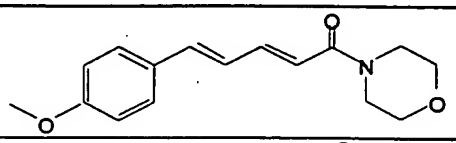
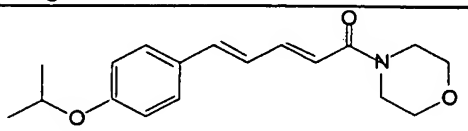
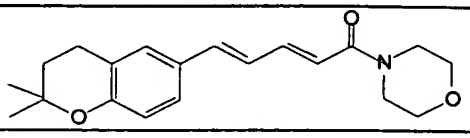
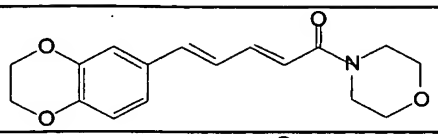
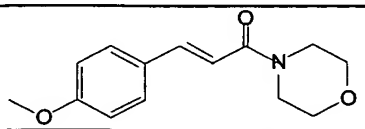
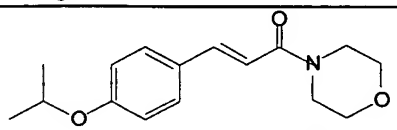
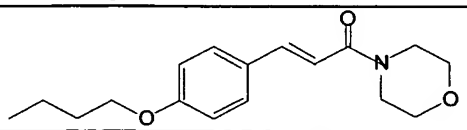
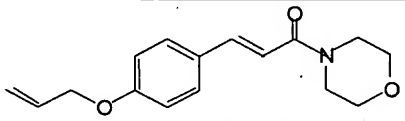
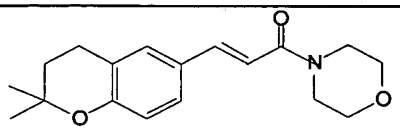
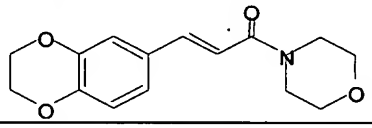
Wherein n = 1 or 2, X = O or N-CH_3 and



wherein R = linear or branched C_1 to C_5 alkyl chain

2. Arylalkenoic acid heterocyclic amide compounds as claimed in claim 1 wherein the preferred compound having structure and names as given below:

S.No	Structure	M.F.	M.P.°C	Pungency index
i		$C_{16}H_{19}NO_3$	133	10^6
ii		$C_{18}H_{23}NO_3$	134	10^7
iii		$C_{20}H_{25}NO_3$	171	10^4

iv		$C_{17}H_{19}NO_4$	137	10^4
v		$C_{14}H_{17}NO_3$	95	10^5
vi		$C_{16}H_{21}NO_3$	98	10^6
vii		$C_{18}H_{23}NO_3$	117	10^7
viii		$C_{17}H_{23}NO_3$	70	10^4
ix		$C_{16}H_{19}NO_3$	88	10^6
x		$C_{15}H_{17}NO_4$	139	10^4

Compound No.	Compound Name
i)	5- (4 –methoxy phenyl) – 2E, 4E-pentadienoic acid morpholine amide
ii)	5- (4 – isopropyloxy phenyl) - 2E, 4E-pentadienoic acid morpholine amide
iii)	5- (2H)-2,2-dimethyl-3,4-dihydro-benzopyran-6yl-2E, 4E-pentadienoic acid morpholine amide
iv)	5- (3,4 –ethylenedioxy phenyl) - 2E, 4E-pentadienoic acid morpholine amide
v)	3-(4 –methoxy phenyl)-2E-propenoic acid morpholine amide
vi)	3-(4 –isopropyloxy phenyl)-2E- propenoic acid morpholine amide
vii)	3-(4 –butyloxy phenyl)-2E- propenoic acid morpholine amide
viii)	3-(4 –allyloxy phenyl)-2E- propenoic acid morpholine amide

ix)	3-[(2H)-2,2-dimethyl-3,4-dihydro-benzopyran-6yl]-2E-propenoic acid morpholine amide
x)	3 - (3,4 –ethylenedioxy phenyl) – 2E-propenoic acid morpholine amide

3. Compounds as claimed in claims 1 and 2 are useful as thermogenic, pungent, spicy agents and constitute as food additives.

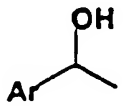
4. Compounds as claimed in claims 1 and 2 can be used as best models for the study and management phenomenon of ailments like pain and inflammation.

5. Compounds as claimed in claim 4, wherein the pathological conditions for the ailment may be selected from arthritis, spinal cord injury or diabetic neurotherapy.

6. Compounds as claimed in claims 1 and 2 can be used as best models for the development of inflammatory drugs, bioavailability enhances and also, for the study of hepatic drug metabolic mechanism.

7. A process for the preparation of aryl alkenoic acid heterocyclic amides as claimed in claim 1, the said process comprising steps of:

(a) reacting aldehyde of general formula (5) with alkyl magnesium halide with constant stirring at an ambient temperature in an anhydrous ethereal solvent to produce corresponding phenyl ethanol of general formula (4),



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Ar-CHO

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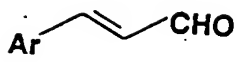
(b) treating the compound of general formula (4) with dimethyl formamide and phosphorous oxychloride at 0° to10°C for 20-40 hours, working up the reaction mixture by adjusting the pH of the solution and isolating the product of general formula (3) by using conventional method,



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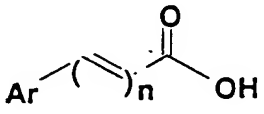
(c) reacting the compound of general formula (3) with witting reagent in presence of a base at a temperature range of 15-80°C in an ethereal solvent for a period of 1-80 hours to get the corresponding carboxylic ester.

(d) hydrolysing the ester of step (c) with strong alkali solution followed by acidification of the reaction mixture to produce the corresponding carboxylic acid of general formula (2),



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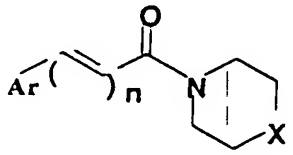
(e) reacting compound of step (d) of general formula (2) with thionyl chloride in presence of an organic solvent at a temperature in the range of reflux temperature of 70°C-80°C, removing the solvent to obtain the corresponding acid chloride,

(f) reacting the acid chloride of step (e) with heterocyclic amine in an inert organic solvent at a temperature in the range of 0 to 50°C for 1 to 16 hours, isolating the product by purifying the reaction mixture to obtain product of formula (I).



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8. A process as claimed in claim 7, wherein in step (a) the alkyl magnesium halide used is methyl magnesium iodide.

9. A process as claimed in claim 7, wherein in step (a) the ethereal solvent used is selected from the group consisting of diethyl ether and tetrahydrofuran and preferably tetrahydrofuran.

10. A process as claimed in claim 7, wherein in step (b) the solution of the reaction mixture is adjusted to pH 6 to 8.

11. A process as claimed in claim 7, wherein in step (b) the product after pre adjustment is isolated by either filtration or extraction with an organic solvent selected from the group consisting of ethylacetate, chloroform, dichloromethane and dichloroethane, preferably ethylacetate.

12. A process as claimed in claim 7, wherein in step (c), the witting reagent used is prepared from the reaction of equimolar mixture of triphenyl phosphine and bromomethyl acetate or bromoethylacetate and preferably bromoethylacetate.

13. A process as claimed in claim 7, wherein in step (c) the base used is selected from a group consisting of sodium hydride, sodium methoxide and sodium ethoxide and preferably sodium hydride.

14. A process as claimed in claim 7, wherein in step (c) the ethereal solvent used is selected from a group consisting of diethylether, dimethoxyethane, tetrahydrofuran, chloroform, and dichloromethane and preferably dichloromethane.

15. A process as claimed in claim 7, wherein in step (d) the alkali used for hydrolysis is selected from a group consisting of sodium hydroxide, potassium hydroxide and calcium hydroxide and most preferably sodium hydroxide.

16. A process as claimed in claim 7, wherein in step (d) the acidification is performed using sulfuric acid or hydrochloric acid and preferably hydrochloric acid.

17. A process as claimed in claim 7, wherein in step (e) the organic solvent used for extraction is selected from a group consisting of dichloromethane, benzene, diethylether and toluene preferably dichloromethane.

18. A process as claimed in claim 7, wherein in step (f) the organic solvent used is selected from a group consisting of benzene, toluene, dichloromethane and ethyl acetate and preferably dichloromethane.

19. A process as claimed in claim 7, wherein in step (f) the purification of the product is carried out by employing crystallization or column chromatography technique.